

ABSTRACT

The present invention provides methods and devices for optical performance monitoring using co-located switchable fiber Bragg gratings (FBGs) in conjunction with a few detectors. This arrangement combines the merit of both tunable FBG filters and discrete detectors to achieve high spectral resolution, fast detection process and great dynamic range. By using parallel co-located FBGs in conjunction with a banded architecture, the tuning range of each FBG becomes much smaller (equivalent of $\sim 0.08\%$ strain). As a result, not only does the update speed of the spectral characteristics for each channel become much faster, but it effectively eliminates the concern of FBG long-term reliability as well.